

CATALPA SPECIOSA NATURALIZED IN WESTERN MASSACHUSETTS¹

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The hardy catalpa, *Catalpa speciosa* Warder, is native from southwestern Indiana and southern Illinois west to Missouri and south to western Tennessee and northeastern Arkansas (Little, 1953). Escaped from cultivation or naturalized through much of the southeastern and midwestern United States, in New England it has been described as rare, occurring on roadsides and in waste places. Seymour (1969) includes illustrations useful in distinguishing *C. speciosa* from *C. bignonioides* Walt., a rather similar species native to the southeastern United States and rarely adventive in New England.

In western Massachusetts we have found *Catalpa speciosa* increasingly common on highway and railroad embankments and along the banks of streams, particularly in the vicinities of bridges. We have observed one abandoned asparagus field near Amherst, Massachusetts, in which the dominant woody invaders were three to four year old specimens of *C. speciosa*. In all instances, the probable origin of the escaped trees can be traced to one or more older cultivated specimens nearby.

We have also investigated a population of *Catalpa speciosa* in a floodplain forest in Northampton, Massachusetts, where the trees, 56 in number, are almost certainly naturalized and reproducing. The sites on which these specimens occur are the east and west banks of a channel and a rebuilt road edge constructed during a diversion of the Mill River in 1939. They occur in association with *Populus deltoides*, *Ulmus rubra*, *Acer saccharinum*, and *Fraxinus pennsylvanica*. The tallest *C. speciosa* is about 40 feet (12.2 m.) in height; most of the naturalized specimens are somewhat below the canopy of the larger native species while several which overhang the bank of the river show particularly luxuriant growth. Lower strata contain *Onoclea sensibilis*, *Pilea fontana*, *Vitis* spp. and *Sambucus canadensis*.

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Table 1. Diameter classes (cm.) of *Catalpa speciosa* population.

	<3	3-13.5	14-24.5	25-35.5
east bank	7	7	5	1
west bank	7	10	6	
road edge	4	6	2	1
total	18	23	13	2
percent of population	32.1	41.1	23.2	3.6

Table 2. Age distributions within diameter classes of representative specimens of *Catalpa speciosa* (saplings excluded).

age in years	diameter class (cm.)		
	3-13.5	14-24.5	25-35.5
1-5	1		
6-10			
11-15	3	1	
16-20	2	2	
21-25	1	3	
26-30			1
31-35			1

Diameters of all specimens of *Catalpa speciosa* at four feet (1.2 m.) from the ground were measured and grouped in four size classes (Table 1); ages were determined for 15 trees within the larger classes by increment borings or, in the case of a few felled trees, by ring counts (Table 2). The oldest tree, an estimated 32 years of age, became established soon after the time of the diversion. This tree and the next oldest (28 years) were the only specimens that fruited during 1975. The remaining specimens are distributed among the three smaller size classes and range from seedlings to trees 25 years of age.

The site is subject to periodic flooding and was inundated at least twice during the autumn of 1975. The form of the smaller specimens is strongly affected by the floods, with growth stunted the first few years and then occurring rapidly after height greater than the normal flood level is attained. For example, one sapling examined in detail was 2.64 m. tall with a diameter at base of 6.5 cm. Although the age of the tree was an estimated seven to eight years, over 2 m. of the total height was attained in the last two years, .96 m. in 1975 and 1.14 m. in 1976. The older portions of the shoot were extensively branched with numerous dead stems.

We have observed several other introduced or recently invasive species spreading in aquatic or semi-aquatic habitats in this section of the state (Burk, Lauermann, & Mesrobian, 1976). *Catalpa speciosa* is the only arborescent member of this group.

LITERATURE CITED

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